

Listening to the Public

Assessing Public Opinion About Value Pricing

Final Report

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Listening to the Public

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BACKGROUND

Traffic congestion and its possible solutions are hotly debated topics in city and state transportation forums throughout the country. Within these forums, value pricing is increasingly being viewed as part of a collection of approaches that can be used to respond to traffic congestion problems¹. Because value pricing involves a new way of charging for road use, it is inherently controversial. Controversy may surround the very concept of using tolls, the level of tolls being considered, or the intended use of revenues generated by tolls. Opinions may also depend on the form that value pricing takes, such as charging for the use of certain lanes on a highway, tolling on certain facilities in a highway network, or levying fees for travel within an urban area, or on major congested routes within an urban area. This working paper will provide a brief overview of value pricing, review a sample of public opinion surveys on value pricing, and examine the role of public opinion in shaping value pricing policies.

The Continuing Problem of Traffic Congestion

It will certainly come as no surprise to drivers in the Minneapolis-St. Paul Metropolitan Area that traffic congestion is a serious problem facing drivers in urban areas across the United States. Traffic congestion is rated as the Metro area's number one problem, cited as the area's most serious problem by 37 percent of those surveyed in a 2001 opinion poll. In 1996, traffic congestion was mentioned as a serious problem by only 8 percent of area residents. This mirrors what is happening across the United States. Despite the many billions of dollars invested in roads every year, the problem of traffic congestion is getting worse. A study published in 2002 by the Texas Transportation Institute (TTI) at Texas A&M University measured the growth in congestion on major road systems in 75 U.S. urban areas from 1982 to 2000. The size of the urban areas in the study ranged from New York City down to those with a population of 100,000. Urban areas in all of the size categories showed more severe congestion over the period, with peak congestion lasting for a longer period of time and affecting more of the transportation

¹ A number of terms have been used to label the concept of value pricing, including congestion pricing, peak-period pricing, variable pricing, and others. When value pricing is applied only to certain lanes on a highway (other lanes remaining untolled), the terms HOT lanes (for High Occupancy Toll lanes), express lanes, managed lanes, or value pricing lanes, have been used to describe the concept. Value pricing and congestion pricing will be used interchangeably in this paper to refer to the general concept of using variable tolls to reduce peak-period traffic congestion.

network. Nationally, the average annual delay per peak road traveler climbed from 16 hours in 1982 to 62 hours in 2000. In the Twin Cities this measure of delay increased from 3 hours to 54 hours (see Table 1).

Table 1. Cost of Congestion, Twin Cities.

Annual Cost Due to Congestion (\$ Millions)				Per Peak Road Traveler		Per Person	
Delay	Fuel	Total	Rank	\$	Rank	\$	Rank
1,070	150	1,220	17	1,050	19	495	18
Annual Delay per Peak Road Traveler, 1982 to 2000							
1982	1990	1994	1999	2000			
3	18	32	57	54			

While the added delay for an individual is measured in terms of minutes, the annual cost of traffic congestion, when aggregated across all drivers, amounts to billions of dollars worth of lost time and wasted fuel. The total congestion "bill" for the 75 TTI areas came to \$67.5 billion in 2000, equivalent to the value of 3.6 billion hours of delay and 5.7 billion gallons of excess fuel consumed. In the Twin Cities, traffic congestion cost \$1.2 billion in 2000, or \$1050 per peak road traveler. The TTI report concludes that to simply keep congestion from growing in the U.S. between 1999 and 2000 would have required one of the following actions: (1) 1,780 new lane-miles of freeway and 2,590 new lane-miles of streets; (2) an average of 6.2 million additional new trips per day taken by either carpool or transit, or perhaps satisfied by some electronic means; (3) operational improvements that allowed three percent more travel to be handled on the existing systems, or (4) some combination of these actions. The TTI report also notes that the way travelers use the transportation network can be modified to accommodate more demand and that "projects using tolls or pricing incentives can be tailored to meet both transportation needs and economic equity concerns" (Schrack and Lomax 2002) .

The Emergence of Value Pricing

Value pricing is one of a number of approaches that are being used to respond to the problem of traffic congestion. In some locations, capacity expansion may be feasible and may be part of the answer. In other locations, mass transit may help solve the problem. The use of intelligent transportation technologies is also emerging as a way to make more effective use of roadway capacity. Each of these approaches can play a role in responding to one of the most vexing problems facing urban America. Yet, none of these measures, taken alone, is likely to be sufficient unless a way is found to link the trip-making decision to the cost of making the trip. Value pricing provides such a link.

Value pricing relies on the power of the market to reduce the waste associated with traffic congestion. It involves road use fees or tolls that vary with the level of congestion. Typically this means that road use charges vary by time of day. Fees are normally assessed electronically to eliminate delays associated with manual toll collection. Such charges might cover a cordoned area, such as a central business district, or might be specific to congested facilities in a highway network. Value pricing charges might cover a single highway route, or might be levied on a specific lane, or lanes, of a highway. Value pricing recognizes that trips have different values at different times and places and for different individuals.

It is no secret that increased traffic during a congested period degrades a road's performance, and one more trip added to the traffic stream imposes delay costs on everyone. Because these costs can quickly become very high, some drivers receive less benefit from their own trip than the delay costs they impose on others. The standard motor fuel-based road charging systems provide no incentive for drivers to recognize this fact. Everybody pays the same no matter where or when they travel. Value pricing incorporates congestion delay costs into the traveler's trip-making decision, encouraging some drivers to eliminate lower-valued trips or take them at different times, or to choose alternative routes or modes of transportation, such as transit or carpooling. At the same time that value pricing is providing incentives for more efficient use of road capacity, it is generating revenues that can be used to finance needed improvements to roads or alternative forms of transportation, thus generating a source of transportation revenue without placing additional demands on other state or local revenue sources.

ASSESSING PUBLIC OPINION

Although value pricing has strong theoretical underpinnings, its chances of being adopted as a local transportation policy depend on the public's reaction to the concept of value pricing and specific value pricing proposals. For this reason, much attention has been given to measuring and understanding public opinion about value pricing and to shaping informational programs to address concerns expressed in public opinion surveys. In all cases where value pricing has been successfully implemented, careful attention has been paid to public opinion, and public involvement in the planning and design of value pricing programs has been a critical element of that success.

Local value pricing programs have used a wide variety of instruments to assess public opinion, some focusing on small group settings, such as focus groups, stakeholder interviews, opinion leader dialogues, or the innovative Citizen's Jury approach used in the Twin Cities in 1995. Other instruments, including telephone surveys and formal survey questionnaires, are used to assess public opinion across larger population groups. Questionnaires might be distributed by mail to a sample of residents, or they might be handed to drivers as they pass certain points in the highway network.

In a 1997 paper, Higgins analyzed the results of opinion polls on value pricing covering the 1983-1996 period. Higgins concluded that value pricing is unlikely to gain support in public opinion polls when it is viewed alone as a congestion management tool. Public support is enhanced when value pricing is coupled with access to new or previously restricted highway capacity, free passage is provided for carpoolers, pricing programs are targeted to specific rather than area wide facilities, or pricing is coupled with removal of auto restraint measures. Higgins concludes that public support is increased when revenue is targeted to specific rather than general transportation

purposes, and that value pricing is most likely to be perceived as equitable in terms of users paying for use, but not fair in terms of job situation and income (Higgins 1997).

Since the time Higgins conducted his review there has been a considerable amount of additional experience with the operation of value pricing projects and the concept of value pricing has been introduced in a number of new areas. This experience, summarized in the following pages, provides new insight into public attitudes about value pricing.

San Diego, California

San Diego, California

Project Synopsis

The San Diego Association of Governments (SANDAG) and the State of California Department of Transportation (Caltrans) have had several years of experience with value pricing projects and with measuring public opinion on value pricing. Because a successful pricing project has been implemented in San Diego, reactions to pricing can be viewed both before the project was implemented and after pricing became an established part of the transportation network, providing some insight into the possibility that greater familiarity may lead to a change in attitudes toward pricing. The kind of pricing currently in operation on San Diego's I-15 has been termed Express Lanes pricing and the currently proposed extension of the pricing program to additional mileage on I-15 is being called a Managed Lanes program.

- The Express Lanes program was established on existing underutilized HOV lanes to allow single-occupant vehicles the option of gaining entry to the HOV lanes through the payment of a toll. The Lanes have been operating successfully since 1996. Tolls vary according to the level of congestion on the adjacent free lanes. Revenues are used to support new transit service in the corridor.
- The proposed Managed Lanes program calls for the construction of four new lanes in the median of a 20-mile segment of I-15, with a movable barrier to accommodate three lanes in the peak direction. High occupancy vehicles and bus rapid transit will use the managed lanes for free, but other vehicles will pay a fee. The fee will be adjusted to maintain a premium level of service on the lanes. The project will include a Bus Rapid Transit system and transit stations/park and ride lots located in the corridor.

Assessment Tools: San Diego, California

- Focus groups, stakeholder interviews, intercept surveys and telephone surveys. 1996: Three focus groups drawn from areas around I-15; 141 intercept surveys at 3 transit centers and 11 park and ride lots; random telephone survey of 400.
- 2002: Three focus groups (I-15 main lane users, Express lane users, Transit riders), 14 participants each; 25 key individual stakeholders (elected officials from I-15 corridor, representatives of concerned public agencies, representatives of public interest/advocacy groups); Intercept surveys distributed to 50 carpoolers and 50 transit riders in the Managed Lanes project area; random telephone survey of 800 peak-period commuters (600 main lane users, 200 FasTrak transponder owners).

Key Findings: 1996

Support/lack of support for Express Lanes

- Frequent commuters in focus groups were enthusiastic about opening of HOV lanes. 7 in 10 focus group participants had a "somewhat" or "very" favorable impression of the proposed "buy-in" program.
- The favorable impression of the Express Lanes program expressed in focus groups and the telephone survey was reflected across all income/demographic groups.
- In intercept surveys conducted at transit centers and park-and-ride lots, HOV and transit users expressed strong opposition to allowing single occupant vehicles to use HOV lanes. 38 percent were "very opposed," 32 percent were "somewhat opposed."

Views on Effectiveness of Lanes

- Only 43 percent of telephone respondents thought the express lane program would shorten commute time, though telephone survey respondents who always or sometimes drive alone felt they would save an average of 11 minutes on a one-way commute.

Willingness to Pay

- In the telephone survey, 70 percent of respondents say they would pay \$20/month for unlimited use of the Express Lanes. 52 percent would be willing to pay \$30/month.

Revenue Use

- 82 percent of respondents wanted revenues to be used to support improved transit service in the corridor.

Key Findings: 2002

Support/Lack of Support for Express/Managed Lanes

- Support for the proposed Managed Lanes program was found in all focus groups, stakeholder discussions, intercept surveys, and the telephone interviews. Strongest focus group support was among Express Lane users. Support was "notably stronger" in the transit riders group than among the main lane users. Support from both groups increased when transit components were introduced. Most who expressed approval of the Express Lanes project, approved because they felt the project provides options that work for people in a variety of situations and that solo drivers help support transit and carpool alternatives.
- 15 of the 25 stakeholders interviewed found the existing Express Lanes program to be successful or very successful. Another 8 expressed more moderate or mixed reactions to Express Lanes. Two stakeholders labeled the project as unsuccessful. Nine of the 10 stakeholders who had direct involvement with the Express Lanes felt they were a success. Reasons cited for success included "improved travel times," "no lanes were 'taken' to improve mobility," and "lanes provide alternative choice for travelers."
- The vast majority of telephone survey respondents expressed approval of the Express Lanes program (two-thirds of main lane users, 88 percent of FasTrak owners). 70 percent of telephone respondents "strongly agreed" and 21 percent "somewhat agreed" that it is a good idea to have a time saving option on I-15 always available. This view is consistent across income/demographic groups. Sixty-five percent of FasTrak customers strongly agreed with the statement compared to only 42 percent of other I-15 users.

Views on "Fairness" of Lane Pricing

- A number of focus group participants initially expressed concern about fairness of tolls for low-income drivers. Support increased when use of funds to support rapid bus transit was introduced. 85% of each focus group viewed the Managed Lanes proposal as fair.
- A minority opinion in all focus groups viewed tolls as elitist and unfair, but for most focus group participants the view that managed lanes would ease congestion on the main lanes overcame equity concerns. Some supporters of managed lanes felt they personally would benefit from the lanes, others felt that as long as people were willing to pay for using the lanes they should be allowed to do so as long as they did not take anything away from someone else.
- Some focus group participants expressed the concern that it was unfair to make highway users who had already paid for the lanes (through taxes) to pay for them again (through tolls). This type of opposition remained throughout focus group discussions, but was softened somewhat when participants were reminded that the tolls were intended to keep traffic moving faster than the main lanes, and when it was pointed out by other participants that no solo driver could use the HOV lanes at all before the pricing project.

- The stakeholder participants who felt the Express Lanes were unsuccessful noted an unfavorable impression by the public that the lanes were not fully utilized because the faster moving vehicles create the impression of "wasted capacity." Other negative comments on the Express Lanes included need for more entrances and exits, need for better enforcement, unpopularity of carpooling, need for improvements in technology, need for better marketing, and failure to involve the public early in the process. Even those who rated the lanes a success admitted that the level of air quality benefits hoped for had not been realized.
- Stakeholders expressed concerns about the equity of managed lanes, but for all but two of the stakeholders these concerns were mitigated by proposed project features such as intermediate access points throughout the facility, allowing a more diverse population group to make use of the lanes, and by the introduction of bus rapid transit on the lanes. Many saw the fact that the lanes are an option in the corridor as a counter to claims that value pricing is unfair.
- Intercept surveys reflected a widely held view that the Express Lanes program was fair (94 percent of transit riders, 92 percent of carpoolers).
- Majority support for Express Lanes was found across all income groups in the telephone survey, but support was somewhat higher (70%) in the "more than \$100,000" group, than in the "less than \$40,000" group (60%).
- Although the belief that tolling involved "double taxation" was held by a slight majority (52% of all respondents, 38% of FasTrak users), the telephone survey results did not indicate any perception of "unfairness" in the managed lanes concept. A solid majority of respondents felt that having access to and using FasTrak on the proposed extension is fair to both users and nonusers of the managed lanes. This opinion was constant across income and ethnic groups.

Views on Effectiveness of Lanes

- Both transit riders and carpoolers felt that Express Lanes encouraged carpooling. 70 percent of carpoolers say Lanes were a factor in their decision to carpool.
- 73 percent of telephone respondents agreed with the statement that the Express Lanes program helps reduce traffic congestion on I-15 (42% strongly agree, 31% somewhat agree). Agreement is stronger among FasTrak users (90% agreement) than among other I-15 users (73% agreement).
- The majority of telephone respondents (71%) agreed that tolls were an effective way to "keep the Express Lanes moving quickly." Agreement was spread across all demographic groups. About one-quarter of respondents (26%) disagreed.

Views on Revenue Use

- When asked how toll revenues should be spent, many felt that net revenues (after project expenses) should be used to support bus rapid transit on the lanes, both to improve mobility on the lanes and to diminish equity concerns. Some indicated revenues should be used to fund physical transportation improvements in the

corridor, others felt that revenues should be used to retire bonds or increase traffic enforcement in the corridor.

- Transit riders felt that toll revenues should be used to expand express bus service and secondarily to extend the carpool lanes. Carpoolers favored carpool lane maintenance and expansion first, then spending revenue on adding regular lanes to I-15. Spending money on transit was ranked much lower by carpoolers than by transit users.
- Responses to questions about toll revenue use indicated that users were less aware of how Express Lane toll revenues were used than respondents to a 1999 survey, possibly indicating a reduced emphasis on marketing the program. When asked how revenues should be used, respondents indicated a preference for using revenues to improve and expand existing freeways and managed lanes and, secondly, to fund new managed lanes and regular lanes. Support for transit uses was relatively minor.

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Orange County, California (SR-91)

Project Synopsis

The automated express lanes on State Route 91 (SR91) in Orange County, California opened to traffic in 1995. This 10-mile privately-funded project consists of four express lanes built in the median of existing SR91. For the first seven years of its existence, the toll road was owned and operated by a private company, the California Private Transportation Company (CPTC). In January 2003, ownership was transferred to Orange County. CPTC continues to operate the lanes. Tolls on the express lanes vary by time of day and the collection system involves the use of in-car transponders and overhead radio readers. The toll structure is designed to ensure a free-flow trip with time savings of up to 20 minutes compared to the adjacent mixed use lanes in return for payment of a fee. Fees currently vary from a base fee of \$1.00 up to \$4.75 during the peak afternoon traffic hours. Carpools with 3 or more occupants can use the express lanes for free except during peak afternoon traffic hours, when they will receive a 50 % discount on the posted toll (Sullivan 2000).

Assessment Tools

The California Department of Transportation (Caltrans) and the Federal Highway Administration supported a multi-year monitoring study of the SR91 express lanes project. 1999 travel surveys involved four samples: (1) present and former peak-period commuters (645 participants), (2) persons who also participated in 1996 travel surveys in corridor (348 participants), (3) persons identified by recent license plate observations on SR91 and nearby Eastern Toll Road (730 participants), and (4) persons who participated in SR91 commuter surveys conducted by University of California-Irvine researchers in 1997 and 1998 (65 participants). All surveys were conducted by telephone. Conventional origin-destination questions were supplemented by in-depth questions on use of the express lanes, commuting strategies, and travelers' perceptions of the SR91 toll lanes (Sullivan 2000).

Support/lack of support for Express Lanes

- Travelers in the SR91 corridor generally approved of the idea of using priced express lanes to bypass congestion in both 1999 and 1996 (in the 50-75% range). For those travelers who reported using the toll lanes for recent trips, approval was in the 70-75% range, with a slight increase between 1996 and 1999. Travelers in the free lanes also indicated approval of the express lanes, but approval was in the 50-55% range. Approval by carpoolers was consistently high in both surveys.
- Approval of variable tolls decreased significantly between 1996 and 1999, with approval levels falling from the 55-75% range to the 30-50% range. Approval of private operation of the express lanes also fell significantly between 1996 and 1999.

According to the study's authors, these opinion changes may be related to a change in the toll policy with regard to HOV vehicles (HOV-3 vehicles were free until January 1998, when they began to be charged 50% of the normal toll), or to public controversy surrounding the express lanes (e.g., worsening congestion on regular lanes, suggestions that CPTC would sell the operation to a not-for-profit entity, Caltrans proposal to expand capacity of regular lanes and threatened litigation by CPTC).

Support/Lack of Support for Selling Excess Capacity on HOV lanes to SOVs.

- Most 1999 participants approved of the idea of allowing single occupant vehicles to use under-utilized HOV lanes for a fee, provided the HOV lanes do not become congested. This question was not asked in 1996. Approval levels were highest among SOV commuters who used the express lanes (74%). SOV commuters who used the free lanes also approved of the concept (59%), and approval levels by HOV commuters were in the 45-50% range.
- Reasons given for disapproving of selling excess HOV lane capacity to SOVs included "government will waste the money" (24% of those disapproving), "tolls not fair on roads already paid for" (21%), "will discourage carpooling" (18%), "only benefits the rich" (13%).

Variations in Approval by Income Group

- Differences in approval ratings by income group were generally not significant, with the only significant variation showing up at the highest income grouping (greater than \$100,000/year), where approval levels were over 70%, compared to approval levels in the 48-58% range for the other income groups. There was no statistically significant difference in approval levels in income groups below \$100,000/year.



California “Transportation Pricing” Study

“Transportation Pricing for California” Study

Project Synopsis

This multi-year study was conducted for the California Air Resources Board. Its purpose was to examine the effects of a number of market-based approaches to transportation demand management. One aspect of the study examined the public acceptability of congestion pricing. The study was completed in November 1996 (Deakin, Harvey et al. 1996).

Assessment Tools: Transportation Pricing Study

To examine citizen reactions to congestion pricing (and other measures), the study team conducted nine focus groups in the San Francisco Bay area, Los Angeles, San Diego, and Sacramento (two in each city, plus one at Berkeley). The focus groups were held in 1993. In addition, a series of interviews and small group meetings were held to obtain feedback from state and local agency staff, elected officials, and representatives of the private sector.

Key Findings

Views on Acceptability of Congestion Pricing

- Focus group reactions to congestion pricing varied across the four urban areas, with participants in the Bay Area and Los Angeles seeing pricing as potentially effective, but Sacramento and San Diego participants viewing pricing as having limited relevance (perhaps because congestion was thought to be serious on only a few routes). Residents of all four areas said they might pay a fee to avoid congestion at least some of the time, but almost no one said they would pay such a fee on a regular basis.
- Congestion pricing was difficult for most participants to understand, except for applications on bridges, tunnels, existing toll roads and special lanes. This may in part be due to lack of familiarity with electronic tolling and vehicle identification technologies (recall that this was in 1993). Once the technologies were explained it was viewed as the way to implement pricing. Some expressed concerns about privacy, but this was not a concern for most.
- Congestion pricing made sense conceptually to most of those interviewed, but many concerns were expressed. Several people were worried about the details of implementing such a policy, expressing concern about spillover onto untolled streets or driving maneuvers to avoid paying the fee. Some felt that road pricing would be spurred if a substantial number of alternative-fuel vehicles came into use, making the gasoline tax less effective for raising revenue.

- Reaction was mixed among interviewees to a policy that would allow single-occupant vehicles to buy into HOV lanes. Some saw this as a way to pay for HOV lanes and saw this as a way that congestion pricing could be implemented. Others felt that this kind of policy is unacceptable because it violates agreements under which HOV lanes were approved (that they would be restricted to HOV vehicles). Both supporters and opponents of pricing on HOV lanes expressed concerns about feasibility and practicality without a “heavy dose” of technology to allow management and enforcement of the policy.

Views on the Fairness of Congestion Pricing

- A number of focus group participants felt that congestion pricing was basically unfair because they felt higher income people who could afford to pay the fee already have more flexibility in work schedules so they could avoid the fee, while the less affluent would be forced to use “far inferior” options for travel, or would have to pay a fee that they could not afford.
- One concern expressed by interviewees was a “deep distrust” of policies that seem to reward the well off. One elected official stated that allowing the affluent to buy their way out of a problem reduces the probability that the problem would ever be addressed properly, and hence was socially irresponsible.

Views on Revenue Use

- Focus group participants in Los Angeles and, to a lesser extent, in Sacramento, felt that use of revenues to improve commuting alternatives had little chance of success. They opposed highway expansion, but also felt that transit could never be competitive, except to the central city. They felt bureaucracies and politicians would waste the money. In contrast, participants in the Bay Area and San Diego were more optimistic about the potential of using revenues to improve transit and fund other desirable projects.
- Those interviewed felt that use of revenues to improve travel alternatives was a necessary prerequisite to congestion pricing, but doubts were expressed that this in fact would take place.

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Portland, Oregon

Portland, Oregon

Project Synopsis

A number of value pricing options were considered as options for relieving traffic congestion in Portland, Oregon in a 3-year study concluded in 2000. The study included an extensive public outreach component. Although this study has not yet led to implementation of value pricing, options are still being considered for future implementation (Portland Metro and Oregon Department of Transportation 2000).

Assessment Tools: Portland, Oregon

Stakeholder interviews, focus groups, targeted workshops, regional workshops, and questionnaires.

The first year of public participation effort focused on holding detailed discussions with interest groups (business, trucking, social services, elected officials, media). These discussions helped shape the pricing options to be considered in later phases. The scope of public participation was expanded during the subsequent two years, with efforts made to reach out to a broader segment of the public (Portland Metro and Oregon Department of Transportation 2000).

Key Findings

Support/Lack of Support for Value Pricing

- Choice was the key variable in Portland, with focus groups and workshop participants insisting that they be given a choice between paying the toll for faster service or using existing lanes for free. Tolling of added capacity or new lanes is preferred to tolling of existing lanes.
- Initial reactions to the idea of peak period pricing were often negative if the exposure to the idea was superficial (TV polls or questionnaires with no discussion), but residents often were neutral to supportive in detailed discussions of the concept, such as in focus groups and stakeholder interviews.
- A general public conception of value pricing is that it requires the use of tollbooths. People view this negatively and as likely to increase congestion.
- In a workshop with the freight industry, there was no general agreement that pricing was the right way to respond to increasing congestion, but some participants indicated a willingness to pay to avoid delays.

- Many people felt that positive incentives should be pursued before value pricing is pursued. People also felt that other congestion relief measures being considered be discussed along with value pricing.
- Stakeholders did not express interest in value pricing when no specific application was described. As the options narrowed and people could focus on specific project types and locations, interest increased.
- People were quite concerned about the possibility of traffic diversion from priced facilities to local streets and parallel arterials.

Views on the Mechanics of Value Pricing

- Since people often coupled value pricing and tollbooths, discussions of the speed and convenience of electronic tolling were needed to move beyond those initial negative reactions.
- Privacy did not emerge as a major issue in Portland, but study authors felt that some discussion of the ways that privacy concerns are being addressed in other areas would be necessary to ensure that privacy would not become an issue.
- People repeatedly asked how and who would enforce a pricing program. They wanted to know how the technology works, how different tolls would be charged to carpools, how out-of-state visitors would be treated, and how deliberate cheaters would be caught and penalized.

Views on the Equity of Value Pricing

- The question of equity was raised with regard to impacts on low-income drivers and those with little choice of how or when they travel. Proposed solutions, such as rebates to low-income people or tax credits, were not supported.

Views on Revenue Use

- The public view of value pricing depends heavily on the proposed use of toll revenues. People reacted negatively if they felt the pricing program was just a way for government to raise revenue. People strongly prefer using revenues for operation and maintenance of the priced facility and/or improvements on or near the facility. Beyond that, there was no clear agreement about whether revenues should be spend on new highway capacity, or for bicycles, pedestrian or transit improvements.

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Denver, Colorado

Denver, Colorado

Project Synopsis

The Colorado Department of Transportation led a 1999-2000 effort to examine value pricing express lane options in the Denver area. The value pricing proposal would provide access to HOV lanes for single occupant vehicles paying a toll. The toll would be assessed electronically and would vary dynamically with the level of congestion to maintain free flow speeds.

Assessment Tools: Denver, Colorado

Focus groups, stakeholder interviews, telephone survey.

- Two rounds of focus group discussions were conducted with commuters at five work locations (first phase), and with travelers along the candidate Value Express Lane corridors (second phase). Issues addressed in the first phase discussions were current travel behavior, perceptions of traffic and congestion solutions, awareness of pricing strategies/solutions, willingness to support pricing strategies, willingness to use a value pricing Express Lane, and issues that need to be addressed to increase support for the Express Lanes concept. The second focus group phase involved discussions with randomly selected commuters in the candidate corridors, I-25 and U.S. 36. Discussion questions were designed to assess participant concerns about transportation and to measure their reactions to the Value Express Lanes concept.
- Stakeholder interviews were held with State and local elected officials, city administrators and planners, and representatives of law enforcement, interest groups and key employers. One-on-one interviews were conducted with stakeholders in the I-25 and U.S. 36 corridors, as well as with regional and state interests. In addition, large group meetings were conducted with stakeholder groups in the metropolitan area.

Views on Traffic Congestion

- Traffic congestion is one of the top issues facing the community and the problem is perceived as getting worse. A "considerable number" of drivers find themselves in situations where they perceive value in having the option of avoiding congestion. A large number of drivers frequently experience situations where avoiding the irritation and annoyance of traffic congestion would have a high value.
- Opinions about how to solve the congestion problem differ considerably and commuters are not generally aware of how transportation projects are funded or the

how much funding is available for transportation. Some focus group participants expressed the view that surplus funds are available for transportation if there are good projects.

Willingness to Pay to Avoid Congestion

- About half the drivers support the idea of having an option to bypass congestion by paying a fee.
- Drivers who cite being late for an appointment, a meeting, or work put a higher value on avoiding traffic congestion than drivers in other situations (though the difference is not statistically significant).
- Drivers who travel to work alone, travel at least 30 minutes one-way, and face congestion would be willing to pay in order to save 15 minutes on the trip home (this group represents a small portion of the total sample).

Support/Lack of Support for Value Pricing

- Support for Value Express Lanes is marginal. About one-half of drivers surveyed by telephone supported the idea of avoiding congestion by paying a fee, but a substantial portion of focus group participants and stakeholders objected to the concept when it was initially presented. Many opponents felt that value pricing would draw focus and funds away from long-term solutions that would have a greater impact. The concept was also viewed as elitist, ignoring public transportation and carpooling, and a form of double taxation.
- Support for Value Express Lanes increased noticeably among focus group participants when they were provided with information about the amount of unused capacity on HOV lanes, the level of funding available for transportation projects, and the experience of HOT lanes in other areas. Support also increased when value pricing was presented as one component of a more comprehensive transportation improvement strategy. Both the drivers and commuter groups indicated they would use Value Express Lanes, even if they were opposed to the concept.

Use of Revenues

- Focus group participants were adamant about not using tax revenues to construct new Value Express Lanes. They also expressed the opinion that toll revenues should be used as a source of funding for long-term transportation solutions. This use of funds also seemed to reduce objections based on "elitism."

Houston, Texas

Houston, Texas

Project Synopsis

Houston's "QuickRide" value pricing project is on I-10, the Katy freeway, a central artery in western Houston. Surplus capacity had been created on the I-10 reversible HOV lane when it was converted from a 2+ HOV restriction to a 3+ restriction to relieve congestion on the lane. Pricing was viewed as a way to manage the capacity in the HOV lane by allowing HOV vehicles with only two occupants to reenter the HOV lane during the weekday peak-hour if they paid a toll. The toll was set at \$2.00 each way. The priced HOV lane began operating in January 1998 (Collier and Goodin 2002).

Assessment Tools: Houston, Texas

Focus groups and public meetings.

Nearly 1400 individuals participated in 14 public meetings and two focus groups to measure public opinion of the project before it was implemented. One focus group was composed entirely of Katy Freeway users, while the second group consisted of members of the general public. The Katy Freeway users group included SOV drivers, carpoolers, and transit riders, while the general public focus group did not contain any regular Katy Freeway users, but did include a cross-section of the population representing a variety of socioeconomic backgrounds (Collier and Goodin 2002).

Key Findings

Support/Lack of Support for QuickRide

- Katy users felt that pricing would be a good way of making use of the excess capacity on the HOV lane. Yet, the majority did not think they would take advantage of the pricing everyday due to varying schedules and plans. Some current bus riders felt the project might result in more carpools and would therefore cause a decrease in bus ridership.
- Katy users ultimately recommended against implementing the project. They felt the transit agency should concentrate more on improving existing bus service in the corridor and improving the HOV lane.
- As with the Katy users group, the general public group felt that implementing a pricing project would not be worth the effort. They also felt that doing so would be taking a step backward and sending the wrong message to motorists rather than encouraging the use of transit and carpooling.

Views on Fairness of QuickRide

- Social equity was not an issue for the Katy users group. Most felt that a pricing project was an economic solution where one pays more for a premium service. Additionally, this group did not see double taxation as an issue since a premium service was being offered.
- The general public group did not see a bias toward low-income users. They felt that if a pricing project were successful in alleviating congestion everyone, both the users and non-users, would benefit (with the exception of the HOV 3 users since the HOV lane would have more vehicles).
- The general public group expressed the view that it was unfair to have to pay for roads that had been financed with tax money.

Revenue Use

- The general public group felt that the project should try to generate as much revenue as possible, and this revenue should be used for transit improvements in the corridor.
- The general public group also strongly felt that any money spent on a pricing project would be better used for improvements on the main lanes of all freeways rather than the HOV lanes.
- In general, focus group members felt the use of the revenue from the project must be clearly defined, and the public must feel confident in the ability of agencies involved to operate and enforce a pricing project.

Minneapolis-St. Paul, Minnesota

Minneapolis-St. Paul, Minnesota

Project Synopsis

Beginning in 1993, a number of study activities were undertaken to examine the feasibility of congestion pricing in the Twin Cities. The Minnesota Department of Transportation and the Twin Cities' Metropolitan Council carried out most of these activities at the direction of the State legislature. The impetus for this interest in congestion pricing was the search for a new source of revenue to meet transportation needs and the growing realization that traffic congestion in the Minneapolis-St. Paul area was steadily becoming worse, particularly in the western and southwestern portions of the metropolitan area.

Assessment Tools: Minneapolis-St. Paul

Public attitudes about traffic congestion and the potential use of road pricing in responding to congestion problems were gauged in a number of small group settings. Prior to the legislatively mandated study of congestion pricing, the Humphrey Institute conducted focus groups with four audiences (transportation professionals, elected officials, business representatives, and community interest group leaders). The Mn/DOT-Metropolitan Council study sponsored an additional 9 focus groups. Opinion leader interviews were also conducted. In addition, two innovative opinion assessment tools were used, an interactive video survey (IVIS™) and a technique called a "Citizen's Jury."

One thousand IVIS™ surveys were conducted with individuals who had recently completed a peak-period trip. Respondents view a series of computer pictures comparing travel options and costs and select their preference by touching the screen. Audio is used to pose questions and record general comments. The IVIS™ survey collected data on people's willingness to switch to an alternative mode, adjust their travel time, or pay a congestion toll on existing or new facilities.

The Citizens Jury is intended to amplify the voice of the average citizen in the public policy process by eliciting opinion that is representative and informed. A panel of 24 randomly selected jurors were faced with the questions: Can congestion pricing be an effective strategy to address present and impending problems of traffic congestion and provide stable financing for surface transportation improvements? If not congestion pricing, then what alternatives may be acceptable? The jurors considered three possible configurations of congestion pricing, areawide pricing, HOV buy-in and facility or corridor pricing. They heard a balance of expert testimony for three days, then deliberated and developed a final report on their conclusions. Two more recent opinion surveys, conducted in 2001 and 2003 as part of broad reviews of transportation concerns in the Twin Cities included questions about the severity of traffic congestion and the potential use of HOV lanes as HOT lanes (State and Local Policy Program 1996; O'Hara and Israel 2002; MarketLine Research 2003)

View of Traffic Congestion Problem

- Focus group participants did not feel that traffic congestion was a major problem in the Twin Cities. Most people did believe that congestion could become a serious problem in the future, however, and there was interest in discussing how to prevent future traffic problems. Some elected officials saw other urban problems as more deserving of attention than traffic congestion. Other officials recognized that congestion was a problem, but were skeptical about the effectiveness of congestion pricing. In the Citizens Jury, 8 jurors said there was a current traffic congestion problem in the metro area, 16 said there was not. 22 of the 24 jurors felt there would be a congestion problem in the future.
- In the 2001 Highway Funding Study survey, 91% of respondents viewed weekday rush hour traffic as either very serious (52%) or somewhat serious (39%). This is perhaps a reflection of the worsening congestion problem in the Twin Cities.

Support/Lack of Support for Value Pricing

- In general, focus group participants rejected congestion pricing as a solution because they did not feel it would be effective in changing travel behavior due to the lack of transportation alternatives. Focus group participants tended to support positive incentives for changing travel behavior rather than increased user fees. Although there was some expressed support for the user fee concept, participants did not gain a clear understanding of the rationale for congestion fees and believed that a gas tax increase would be just as effective in reducing congestion at a fraction of the cost. Concerns expressed by those opposed to congestion pricing included effects on downtown business, it is not right to charge for roads that had already been paid for by other taxes, diversion of traffic to unpriced routes, might benefit car travel rather than improve transit service, and no revenue would be raised if pricing reduced travel.
- Opinion leaders questioned the effectiveness of congestion pricing because they believed that it would result primarily in a change in travel routes rather than a shift in travel modes or time of travel. They also expressed concerns about diversion of traffic onto local streets, administrative costs, reliability of technology, and loss of privacy. They were not categorically opposed, but felt there would need to be an extensive public education campaign in order to build support for congestion pricing. Elected officials were the most supportive group, some suggesting that the public perception of empty HOV lanes might be an opportunity for a new approach. The focus group moderator felt that elected officials would await greater public understanding and support of the concept before becoming advocates.
- The IVISTM survey results demonstrated the highest level of support for congestion pricing, with nearly 50 percent of respondents supporting congestion pricing when asked to choose from an array of options. Respondents indicated a willingness to pay to avoid congestion when time tradeoffs were clearly communicated. However, when respondents were asked to provide specific comments at the end of the survey, opposition to congestion pricing and tolling in general was quite strong. Support for

congestion pricing was greater when applied to existing facilities than when applied to new roads (This result could have reflected opposition to building new roads or opposition to a then proposed plan to solicit private toll facility proposals).

- By a vote of 7 yes, 17 no, the Citizens jury rejected congestion pricing as “an effective strategy to address present and impending problems of traffic congestion and to provide stable financing for surface transportation improvements.” The 7 who voted yes were among the 8 jurors who said they faced severe congestion in their commute. Most jurors did not believe the metro area was congested enough to justify areawide pricing. However, 12 jurors supported the use of spot tolls (specific corridor or bridge) to relieve congestion under certain conditions, with 8 against and 4 not sure. When asked whether they would like to see a pilot demonstration of congestion pricing implemented in the Twin Cities, 7 said yes, 11 said no, and 4 were not sure. When asked whether they would like to see a pilot demonstration in some other metro area, 18 jurors said yes, only 2 said no, and 4 were not sure.
- In the 2001 Highway Funding Study survey, 57% of respondents either strongly favored (24%) or somewhat favored (33%) the option of paying a fee to use an uncongested freeway lane when in a hurry. In the 2003 survey, 40% of respondents opposed and 58% opposed allowing solo drivers access to HOV lanes for a fee. It is possible that the mere difference in phrasing the question could explain the difference between the 2001 and 2003 surveys.

Views on Revenue Use

- In the focus groups, transportation professionals and elected officials gave highest priority to using toll revenues to fund transit. Improving highways was ranked first by business representatives and compensating those who might be economically penalized by tolls was ranked first by community leaders.
- In the opinion leader interviews, elected officials conveyed a strong message that revenues should be spend solely on transportation projects and as close as possible to the area where they were raised. There was notable disagreement on the use of revenues to fund transit.
- In the IVISTM survey, greatest support was given to the use of revenues to maintain the tolled corridor, followed in order by maintenance of all roads, funding public transportation, reducing property taxes, and providing low-income tax credits.

Views on the Effectiveness of Congestion Pricing

- Many focus group participants believed that congestion pricing would not be effective in reducing congestion or that the technology would not work. In the Citizens Jury deliberations, there was also a strong sentiment that congestion pricing would not change travel behavior (11 votes). Yet, they also believed that a small increase in transit service that would result from an increase in the gasoline tax would change their choice of travel mode.

Views on Fairness of Congestion Pricing

- In the initial focus group discussions, low-income people and the central cities were seen as the biggest losers resulting from congestion pricing (though transit and transit users were perceived as the biggest winners). Concerns were also expressed about downtowns being hurt at the expense of suburbs.
- 15 Citizens Jury participants listed negative impacts on low-income individuals as their reason for opposing congestion pricing. This was particularly true when the HOV buy-in option was being considered. When areawide or facility pricing were discussed, concern related more to individual transportation options than to income.

Tappan Zee Bridge, New York

Tappan Zee Bridge, New York

Project Synopsis

The Tappan Zee Bridge is owned and operated by the New York State Thruway Authority. It is on a major commuter route connecting Rockland and Westchester Counties with employment centers in White Plains, New York and the New York City metropolitan area. Traffic in the southbound direction is currently tolled at \$1.00 for commuters using E-Z Pass and \$3.00 for non-commercial cash customers (2000). The 3-mile bridge has seven lanes and a reversible lane is created during the peak period by a moveable barrier to add capacity in the peak direction. Nearly 90 percent of the bridge traffic is comprised of single-occupant vehicles. Pricing was considered for the purposes of reducing congestion and improving air quality (Resource Systems Group, Wilbur Smith Associates et al. 1999).

Assessment Tools: Tappan Zee Bridge, New York

Resource Systems Group in association with Wilbur Smith Associates conducted an extensive study of value pricing for the Tappan Zee Bridge. Initially, three focus groups were assembled from a list of E-Zpass customers. They were asked their current travel patterns, the flexibility in their travel patterns, their opinions of travel conditions, and suggestions for improving travel conditions. A moderator then introduced the concept of congestion pricing and asked how this might change their travel patterns. An explanation of the potential benefits from reduced peak-period travel was given to the second and third groups before the concept of congestion pricing was mentioned.

Detailed survey instruments were then used to develop a statistically significant view of opinions on congestion pricing on the bridge. The survey was distributed to seven segments of the traveling public. To enhance participation, three different survey instruments were used. More than 3000 bridge travelers or potential bridge travelers completed the survey. The survey asked general opinions about congestion pricing before giving any information about the concept. The survey then described congestion pricing and changes being considered on the bridge. Zogby International conducted a follow-up survey of 704 residents in the four-county area served by the bridge in August 2000 (Resource Systems Group, Wilbur Smith Associates et al. 1999).

Key Findings

Support/Lack of Support for Bridge Pricing

- In the first focus group, the moderator did not explain how reduced peak-period travel might benefit peak-period travelers. This group reacted negatively to pricing concepts and saw pricing as a threat to their way of commuting. They saw no

potential benefits nor did they trust that the New York State Thruway Authority would use any revenue generated for bridge improvements.

- The groups that had heard the explanation of the benefits of reduced peak-period travel reacted more positively but some participants remained skeptical that enough people would alter their travel patterns to impact actual travel times. People with greater flexibility in their travel times indicated that they would alter their travel times if pricing were implemented.
- Opinions on pricing tended to be more favorable in the broader survey, and they tended to improve as more information was provided about congestion pricing and potential time savings. All of the automobile segments of the survey participants favored the use of congestion pricing for commercial vehicles, including surcharges for peak-period travel.
- Overall, there was a slight majority that supported pricing concepts. However, that support appeared tenuous and not nearly as strong in support as the strongly held views of those in opposition. Just over 50 percent of all respondents either strongly favored or somewhat favored congestion pricing on the Tappan Zee Bridge, while about 30 percent either opposed or strongly opposed.
- In the follow-up survey, value pricing was the least favorable concept offered in the survey (37.5% of respondents). Only those in the \$20,000 - \$39,999 income bracket found value pricing more favorable than unfavorable.

Understanding of Congestion Pricing

- In general, most survey respondents could understand how travel costs could increase during the peak-period but they had more difficulty in understanding how congestion pricing could impact peak-period congestion. Most people did not believe that price increases would cause enough peak-period travelers to shift their travel times to result in less congestion.

Fairness of Congestion Pricing

- None of the surveys found significant differences in attitudes about congestion pricing among different demographic groups.

Lee County, Florida

Lee County, Florida

Project Synopsis

This project, on two toll bridges in Lee County, offers toll discounts to travelers who use these bridges during the hours shouldering the morning and afternoon peak traffic periods. To receive the discount, travelers must use the electronic toll collection system (Center for Urban Transportation Research 2000).

Assessment Tools: Lee County, Florida

Focus groups, intercept travel surveys, telephone survey.

Public opinion information was collected before and during the period the toll discounts were in effect. The purpose was to determine the characteristics of those drivers who changed their travel patterns as a result of the toll discounts and to gather information on the effects of those changes on peak-period travel (Center for Urban Transportation Research 2000).

Key Findings

Support/Lack of Support for Variable Tolls

- The toll discount program was well received by Lee County residents, with 70 percent of survey respondents expressing support for the program.

Effects of Value Pricing on Travel Behavior

- About one-half of telephone survey respondents indicated they considered the toll discounts when planning trips across the toll bridges. A large majority of those polled indicated that they felt the discounts encouraged travelers to change their time of travel
- Thirty-eight percent of bridge users who used the electronic payment system indicated that they altered their travel to take advantage of the discounts. Of these, 84 percent changed their time of travel, 9 percent changed their route, and 6 percent changed their number of trips.
- Inflexible travel time was the primary reason given for not taking advantage of the variable toll program. Saving money was the primary reason given for participating in the program.

London

London Congestion Charging Program

Project Synopsis

In February 2003, the city of London launched an ambitious road pricing program to combat congestion in the central city. The program entails a standard per day charge for vehicles traveling within the central zone. Cameras are used to identify cars entering into or traveling within the zone. The charge applies on weekdays from 7am to 6:30pm. The zoned area covers 8 square miles, 1.3% of Greater London's land area. There are 174 entry and exit boundary points. Numerous exemptions and discounts are allowed. Revenue is to be spent on transportation improvements. In March 2003, almost 500,000 congestion charge payments were being made each week.

Assessment Tools: London Congestion Charging Program

Numerous opinion polls on the congestion charging program have been conducted, both before the plan was implemented and since the plan went into effect. A major public polling firm in London conducts most polls, some for the government, some for business interests, and some for the Automobile Association. A number of interviews with public officials, business people, and others have also solicited opinions on the congestion charging plan (Mori House 2003; Transport 2000 2003).

Key Findings, Before Implementation

- In polls taken in 1999 through 2001, people living in London viewed traffic congestion as the most serious urban problem they faced. In a 2001 survey, 72% of citizens viewed traffic congestion as a serious problem.
- In 2000, the congestion-charging plan was one of Mayor Ken Livingston's main election pledges. He won by a large margin. Most polls showed opinion divided fairly evenly between supporters and opponents of the charging plan, but opinions switch heavily in favor if revenues are dedicated to transport improvements.
- Congestion charging was backed by 53% of Londoners in 2001, if the revenues were used to make significant improvements to local public transport.
- Twice as many people living in London are prepared to pay "something" as a congestion charge, as opposed to "nothing," compared to the rest of the country. Of the people who said they would pay something, nearly half said they would be prepared to pay £5 or more.
- In another 2001 poll, support for the congestion charging plan was found throughout the city, with strongest support (56% in favor, 31% against) in the central area where the charge would apply. There was also support in outer London (48% in favor, 36% against). Even in the area just outside the proposed boundary, the area where foes

said there would be great opposition, the plan was favored by 47% and opposed by 43% of those polled. In this poll, 83% of those polled indicated that they were familiar with the proposed congestion-charging plan.

- In 2002, a survey of top business leaders in London revealed that 73% felt that road pricing or congestion charging would “improve” or “significantly improve” congestion over the next decade. The main London business groups supported the charging plan (Mori House 2003).

Key Findings, Since Implementation

- While public opinion before introduction of the charging plan was narrowly in favor of congestion charging, a poll taken in March 2003 showed 50% in favor, 12% neither support or oppose, and 34% against (24% strongly oppose). A much larger majority (67% to 20%) considered it effective in reducing congestion.
- Mayor Livingstone’s 2003 personal poll ratings are now higher than they were when he was elected in 2000, with 46% very or fairly satisfied with his job performance, compared to 30% who are very or fairly dissatisfied. At the end of 2002, these numbers were evenly balanced. Opposition to the plan by the Conservative Party, which was quite vocal before introduction, has been muted since the successful introduction of the plan.
- A survey of business firms carried out in mid-March showed strong support for congestion charging in all sectors of the business community. Only a small minority reported a negative impact. Around 65% said the plan had had no effect, while 30% said the effect had been positive. A very large majority (74%) of businesses thought congestion charging “had worked.” A majority (53%) felt that the effect on their personal trips had been positive.
- While it is perhaps too early to make a judgment on the overall success or failure of London’s congestion charging plan, the early results, and associated public opinion polls, have been quite positive. Discussions are already turning to extensions of the plan to other areas in London, and several other cities in England are discussing the possibility of congestion charging. The mayor of London has said, “If it doesn’t work, I expect that will be the end of me politically, but if it does work, I expect many other great world cities will copy it”(Pomeranz 2003).

Hong Kong

Hong Kong

Project Synopsis

In January 1995, to support government efforts to reduce traffic congestion in Hong Kong, the Social Science Research Centre (SSRC) at the University of Hong Kong conducted a survey to determine consumer attitudes toward traffic congestion and possible solutions (Chung Ting-yiu and Mak 1995).

Assessment Tools: Hong Kong

SSRC conducted a random number telephone survey of 504 motorists and 545 non-motorists. Survey questions were divided into four sections: (1) three questions on the respondents' general impression of traffic congestion in Hong Kong; (2) 6 questions on basic principles to cope with traffic congestion (rate on a scale of 1 to 5); (3) 6 questions on specific proposals to cope with traffic congestion (rate on a scale of 1 to 5); and (4) 3 questions on use of revenues generated by adopting various measures (Chung Ting-yiu and Mak 1995).

Key Findings

Views on Traffic Congestion

- Over 80% of the entire sample viewed traffic congestion as a serious problem facing Hong Kong, including over 30% who said it was a very serious problem. Motorists and non-motorists shared the same view. As to causes of traffic congestion, 60% of those surveyed mentioned growth in number of vehicles as the most important factor, followed by 12% who mentioned slow expansion of roads. Opinion was consistent across motorists and non-motorists.

Views on Measures to Address Congestion Problems

- When asked to mention the most appropriate measure to address traffic congestion, 23% of respondents mentioned road construction. Adopting executive measures and improving public transport each received 10%. 35% of respondents could not think of a solution or considered the problem "hopeless."
- When asked questions about basic principles and specific measures for dealing with road congestion, respondents were asked to rank solutions according to a scale of five (strongly agree, agree, neutral, disagree, or strongly disagree). A weighted average of responses was used to develop a "support scale." This support index takes on a value between 0 and 100, with 50 as neutral and 100 as absolute support. Development of infrastructure received strongest support from both motorists and non-motorists. Respondents were also very supportive of improving coordination of roadwork and improving public transport. Financial measures were opposed by a majority of respondents.

Table 2. Views on Basic Principles to Cope with Traffic Congestion

Measure	Support Index		
	<i>Motorists</i>	<i>Non-motorists</i>	<i>Overall</i>
Constructing roads	90.2	84.9	85.6
Coordinate road work	84.1	83.5	83.6
Develop/improve public transport	83.7	80.3	80.8
Improve traffic management	63.2	73.2	71.8
Use financial measures on road users	33.1	42.8	40.4
Use financial measures on car owners	22.3	41.6	39.7

- When asked to rank specific measures for dealing with traffic congestion, none of the measures received majority support from motorists, with measures to increase the cost of owning an automobile being most soundly rejected. Non-motorists were somewhat more receptive of car quotas, weekend only licenses and electronic road pricing. Most strongly opposed were measures that would increase registration taxes (to 70% of the retail price of a car), increase tunnel tolls, and increase annual license fees (by 40%).

Table 3. Views on Specific Proposals to Cope with Traffic Congestion.

Measure	Support Index		
	<i>Motorists</i>	<i>Non-motorists</i>	<i>Overall</i>
Week-end only license	48.4	58.7	56.8
Electronic road pricing	44.3	58.4	55.9
Car quota system	40.3	54.7	53.1
Increase tunnel tolls	32.5	41.4	39.3
Increase first registration tax to 70%	27.8	40.1	39.0
Increase annual license fee by 40%	19.8	38.7	35.9

Measures included in the telephone questionnaire were policies that had either been considered as government policies, or were being tested for the first time (week-end only licenses).

PRIMA Project

European Commission's PRIMA project

Project Synopsis

Completed in 2000, the purpose of the European Commission's PRIMA project on road pricing were to identify the reasons behind the acceptance or non-acceptance of road pricing and to produce recommendations for the implementation of urban road pricing in Europe. The PRIMA project covered eight European case cities with varying degrees of history, urban geography and traffic policy and different perspectives on road pricing (Transport Research Programme Knowledge Centre 2002).

Assessment Tools: PRIMA Project

Surveys with 500 citizens and interviews with politicians, experts and stakeholders were carried out in each of the eight cities, and assessment workshops were held in four countries (Transport Research Programme Knowledge Centre 2002).

Key Findings

Views on Acceptance of Road Pricing

- Acceptance of road pricing depends on stakeholders perceiving that there are severe and urgent traffic problems and that pricing is an effective part of the solution.
- Acceptance requires alternative modes of transport to be available. For instance, investment in public transport should accompany the introduction of pricing.
- Acceptance requires public participation in the decision-making process. The starting point must be open discussion of traffic problems and the objectives for urban transportation policy.
- Increased use of information technologies and electronic payment systems in other applications is expected to improve acceptance of the technologies needed for efficient road pricing. Privacy issues linked to road pricing do not seem to have an important negative influence.
- Acceptance from a majority of citizens cannot be expected from the outset. Experiences from several cities show that acceptance tends to increase after implementation, but this is quite sensitive to the level of charges.
- Introduction of road pricing should allow for gradual adjustment to the new policy. For example, toll roads for financing might precede the use of tolls for congestion management. Interviews showed that representatives of interest groups and political leaders are ready to see road pricing as a means of financing improved infrastructure and improving the quality of urban areas.
- Success of earlier road pricing schemes influences acceptance. Therefore, the dissemination of results between cities is important.

Views on Fairness of Road Pricing

- Charges should start low, and compensating measures should be considered for social groups that are “disadvantaged” by the pricing system.
- The initiative to introduce road pricing should be seen as coming from the urban area. In addition, national legislation will have to be changed in many countries, and financial support from the national government may be needed to ease the change for car users.
- Respondents to the citizens’ surveys think that road pricing could disadvantage urban regions that apply pricing compared to regions that do not.

ROLE OF PUBLIC OPINION IN VALUE PRICING PROJECT DEVELOPMENT

The public opinion assessments reviewed in this paper show that there is a wide variety of opinion on value pricing and that the public view of value pricing is subject to change over time. Initial reactions can be quite negative, yet as people become more familiar with the concept and practice of value pricing, they may begin to see it as an effective congestion relief tool and become more supportive. Much depends on how serious the congestion problem is viewed to be, how specific value pricing options are presented, what types of value pricing projects are being considered, what other proposals are included along with the value pricing proposal, what alternative policies are being considered, and how the overriding question of “fairness” is dealt with. The fairness question, in turn, depends heavily on the way toll revenues are proposed to be used.

Responding to the traffic congestion problem

When a value pricing proposal is presented to the public, it is useful to begin with a discussion of the problem being addressed—traffic congestion. If people do not view traffic congestion as a serious problem, they are unlikely to be receptive to new ways of charging for highway use. People are more likely to accept a new approach to congestion relief if they are regularly faced with traffic delay in their daily lives. If congestion is limited to a few routes or facilities, people may be receptive to lane pricing proposals or bridge pricing proposals designed to relieve congestion at pressure points in the highway network. If congestion is viewed as being more pervasive, proposals for more areawide pricing approaches may have more chance of success. It is also important to focus attention on the economic costs associated with traffic congestion. An individual’s loss due to traffic congestion is important to that individual, but relatively minor when contrasted with the cost aggregated across all drivers, or the effects of traffic congestion on local business and the local economy.

Poll results often reflect the fact that views on alternative solutions to the traffic congestion problem are influenced by the seriousness of the traffic congestion problem they face..

- In the opinion survey included in Minnesota’s 2001 Highway Funding Study, more than half the respondents viewed traffic congestion as either a very serious or somewhat serious problem. In the same survey, 57% of respondents favored having the option of paying a fee to use an uncongested freeway when in a hurry.
- When the “Citizen’s Jury” on congestion pricing was held in Minneapolis-St. Paul in 1995, 8 of the jurors voted that traffic congestion was currently a serious problem in the

metropolitan area, 16 voted that it was not. When the jurors voted on the question of whether they would like to see a congestion pricing demonstration project in the Twin Cities area, 7 voted yes, 11 voted no, and 4 were not sure. All of the seven who voted yes were also among those who voted that traffic congestion was a serious problem.

- In Denver, even though support for value pricing was only marginal, focus group discussions indicated that people view congestion as a very serious problem and many would be willing to pay a fee to avoid congestion. To half the drivers surveyed by telephone supported the concept of avoiding congestion by paying a fee.
- In the California “Transportation Pricing” study; focus group participants in the more congested urban areas of the Bay Area and Los Angeles saw pricing as potentially effective, while those in Sacramento and San Diego, where congestion was viewed as a serious problem only on a few routes, saw pricing as having limited relevance.
- In Hong Kong, where 80 percent of survey respondents found traffic congestion to be a serious problem, 44 percent of motorists and 58 percent of non-motorists supported electronic road pricing as a measure to deal with congestion.
- In London, which has adopted a congestion-charging plan, nearly three-quarters of people surveyed viewed traffic congestion as a serious problem.

While discussion of the congestion problem is essential, it cannot be the only rationale presented for value pricing. As Higgins concluded in his survey of public opinion (Summary results from Higgins survey included as Appendix A), when a value pricing proposal is described solely as a way to reduce congestion, support will be low (Higgins, 1997). Yet, public opinion polls also show that presenting value pricing solely as a way to close a funding gap is likely to be unsuccessful. People are familiar with the gas tax as a way of raising transportation revenue and may not be persuaded by arguments that future problems with the gas tax, such as increases in fuel efficiency or increased penetration of alternative fuel vehicles, are so significant as to necessitate a change in the way highways are funded, at least in the near term. Even if a case can be made for toll financing to augment gasoline tax revenues, the use of variable tolls may be questioned. Public opinion is more likely to be favorable toward a value pricing proposal if the two rationales are combined, that is, if value pricing is presented as a way to respond to traffic congestion that can also raise needed revenue to fund transportation improvements.

Familiarity with the concept and practice of value pricing

Experience with value pricing is an important factor in explaining variations in peoples’ views on this approach to dealing with traffic congestion, whether this experience comes through observation of actual projects or through examination and discussion of value pricing concepts.

- In San Diego, the 1996 intercept surveys showed that over two-thirds of carpool and transit users were opposed to allowing single-occupant vehicles the option of “buying-in” to the use of HOV lanes. Yet, 6 years later, after the successful experience of the I-15 express lanes, the strongest support for extending the express lanes program was found among carpool and transit users.
- In the Tappan Zee bridge study, focus group members with no prior knowledge of the potential benefits of value pricing were quite negative about the concept. When the potential time savings and other benefits of value pricing were explained to other focus groups and to survey respondents, participants were much more receptive to the concept.

- In Portland, initial reactions to value pricing tended to be negative if there was no accompanying explanation of the concept, but people became more receptive in group settings when there was detailed discussion of value pricing's purpose and expected effects.
- In London, there was a fairly even split between supporters and opponents of the congestion charging plan before the program went into effect, but a month after the plan became effective, only 34 percent of those surveyed opposed the plan, and a large majority considered the plan effective in reducing congestion.

In areas where people are unfamiliar with modern tolling practices, initial reactions to value pricing are often clouded by a misconception that tolling means stopping at tollbooths. In Portland, for instance, initial poll results showed that people viewed value pricing as being likely to increase congestion because it required the use of tollbooths. Although people in some locations have become more familiar with tolling due to the recent growth in the use of tolls to finance road improvements, many may not have had experience with toll roads. Most will not have had experience with the use of variable tolls to reduce congestion. Bringing the experience of existing value pricing projects to the attention of people in an area where a value pricing project is being proposed can help overcome this lack of experience. It is essential that the old images of manual toll collection be replaced with images of modern electronic tolling practices that are rapidly becoming universal in the United States and around the world. Questions associated with electronic toll collection, such as privacy concerns, need to be addressed. The fact that toll companies do offer simple procedures for customers to maintain anonymity, but most customers choose not to use them may help allay such fears.

Many people also initially voice the opinion that value pricing will not be effective in reducing congestion. This view may change as people become more familiar with value pricing.

- In San Diego's 1996 survey, only 43 percent of telephone respondents thought express lanes would shorten commute time.
- In New York's Tappan Zee study, most survey respondents did not believe that price increases would cause enough change in peak-period travel to result in less congestion.
- In Minnesota's "Citizen's Jury" examination of value pricing, only 7 of the 24 jurors felt that value pricing could be an effective congestion relief strategy. When jurors were asked to give reasons for their rejection of value pricing, "inability to change travel behavior" was the third most commonly cited reason.
- Greater familiarity with the operation of existing value pricing projects may lead to a shift in this attitude, as reflected in San Diego's 2002 survey, where 73 percent of telephone respondents agreed that express lanes help reduce congestion, and 71 percent agreed that tolls were an effective way to "keep the Express Lanes moving quickly."
- Operational results from variably priced toll roads in California, Texas and New Jersey, toll bridges in Lee County, Florida and the New York/New Jersey area, and evidence from value pricing projects in other countries, including England, France and Singapore, are providing evidence that travelers do respond to price changes in making travel decisions, and these changes in travel behavior do lead to reductions in traffic congestion.

The criticism that value pricing won't work because "most people can't or won't change their travel time", or "most people won't regularly pay a fee to reduce their travel time," ignore that

fact that most people do not have to change their travel patterns for value pricing to be effective. It is true that many, perhaps most, people won't change their travel behavior in response to higher peak-period tolls, but some will, or some will on some days. This can be enough to appreciably reduce congestion. As has been shown by modeling results and now by actual practice, if only a relatively small portion of travelers decide to travel at a different time or on a less-congested route, or to use a different mode of transportation, this can be sufficient to have a significant effect on peak-period travel.

Another criticism voiced in many public opinion surveys is that converting HOV lanes to priced lanes, that is, HOT lanes, will hurt carpooling. Again, the experience from California may help counter this criticism. Carpooling on the I-15 express lanes actually increased after implementation of the value pricing project. This may at first seem counterintuitive, since people could always carpool for free on the lanes, so why should carpooling increase just because single-occupant vehicles can now use the lanes for a fee? Part of the answer may be that carpooling requires flexibility. People may hesitate to join a carpool because they cannot make the commitment that they will be able to make the carpool times every day. Now, on days when some carpool members cannot make the trip, the time savings are still available for a fee. Thus, there may be greater carpool formation, even though the carpool only exists on certain days. Another possibility is that increased enforcement financed from express lane revenues means that potential SOV violators of the HOV lanes may now join carpools because they are more likely to be detected if they try to violate the HOV rules.

Type and location of road pricing being considered

People's reactions to value pricing also depend on the type and location of road pricing being considered. People seem to be much more receptive to paying a fee to bypass congestion on a toll lane than they are to the general concept of being charged a fee to use a road or bridge.

- In the Minnesota opinion survey cited by Higgins, 47 percent of peak-hour travelers favored tolls on existing congested facilities, while only 33 percent supported congestion tolls on new lanes or roads (perhaps because they view the new facilities as being uncongested).
- In a 1996 Resources for the Future survey on congestion pricing (Harrington 1997), 45 percent of respondents said they would support congestion fees on an existing lane (with 48 percent opposed), but support jumped to 54 percent when the congestion fee would only apply to newly constructed lanes.
- In San Diego and Houston, people became more receptive to value pricing when they saw it as a way of making better use of underutilized HOV lanes.
- San Diego stakeholders felt that claims that value pricing is unfair were countered by the fact that express lanes are offered as an option in the I-15 corridor.
- Portland residents insisted that they be given a choice between paying a toll for faster service and continuing to use existing lanes without charge.

The location, "in somebody else's city" or the view that value pricing will only apply to someone else also seems to gain support for pricing.

- In Minnesota, the 24-member "Citizen's Jury" decided by a vote of 7 yes, 11 no, 4 not sure, that they would not like to see a demonstration of congestion pricing in the Twin

Cities metropolitan area, But, the majority of jurors (18 yes, 2 no, 4 not sure) voted that they would like to see congestion pricing tried in some other area.

- In the Tappan Zee bridge study, roughly half of all respondents favored congestion pricing on the bridge, but 100% of the automobile travelers favored congestion pricing for commercial vehicles.

Choice is the Key

Opinion survey results show that people are much more likely to respond favorably to a value pricing proposal if they see that they are being given a new travel choice. This is an attraction of HOT lane proposals, where either excess capacity is being opened up to single-occupant vehicles or perhaps new capacity is being constructed as a HOT lane. In either case, people can either pay to use the priced HOT lane (and enjoy faster service) or continue to use the regular lanes with no reduction in service (or perhaps some service improvement to the extent that traffic is diverted from the regular to the priced lanes).

- In the Minnesota 2001 survey mentioned above, when people were asked whether they favored paying a fee to use freeways to keep them open and flowing during major construction projects, 44% favored this option and 8% did not voice an opinion. When the question was whether people favored having the option of paying a fee to avoid congestion, the percent in favor jumped to 57%.

Even if pricing is more pervasive than in a HOT lanes proposal, however, a number of other travel choices are made more apparent through the use of value pricing. People make travel choices every day, either through choosing a time of travel, a mode of travel, or whether or not to make a trip at all. Value pricing places a monetary value on those choices. In responding to a new arrangement of monetary incentives, some people may choose to travel at different times, some may choose a different mode of travel, and some may consolidate trips to avoid making a trip during the peak congestion period. Each of these choices can help reduce congestion.

Policies included with the value pricing program

The package of policies to be included with value pricing also greatly influences opinion poll results.

- In his 1997 review of public opinion surveys, Higgins found that when congestion pricing was coupled with removal of ramp metering in Minnesota, support increased substantially from 26 percent (pricing on all freeways, peak period), to 49 percent (pricing on all freeways, but no ramp metering).
- In the Resources for the Future survey included in Higgins review, 56 percent of those surveyed opposed a rush hour fee of 5 to 10 cents per mile (38 percent supported the plan, 6 percent “didn’t know”). When the fee was combined with a reduction in motor vehicle taxes/fees, support increased by about 7 percentage points (Harrington 1997).
- Higgins also found that the proposed use of toll revenues is a key determinant of attitudes about pricing. Opponents and undecided poll respondents were more likely to support peak period pricing when specific uses of revenue were indicated (transit improvements,

carpool assistance, decreases in non-peak tolls, discounts for low-income drivers), rather than defined by more general statements such as “for transportation purposes.”

- In the 2002 San Diego focus groups, participants felt that using revenues to support rapid bus transit overcame concerns about managed lanes being unfair for low-income users.
- In Denver, support for value express lanes increased when value pricing was presented as one component of a more comprehensive transportation improvement strategy.
- Poll respondents in Houston, Texas felt that toll revenues should be used to improve transit services in the corridor. They also felt that money spent on improving HOV lanes would be better spent on improvements to the main lanes.
- Portland residents reacted negatively if they felt the pricing program was just a way for government to raise revenue for general government purposes. They favored use of revenue for the operation and maintenance of the priced facility or for improvements at or near the highway being priced.
- Support for value pricing in London increased substantially when revenue use was tied to transport improvements.
- Findings from the European Commission’s PRIMA project also show that representatives of interest groups and political leaders find road pricing more acceptable if revenues are tied to financing improved infrastructure and improving the quality of urban areas.

Opening up unused capacity on existing highways, using toll revenues to fund highway or transit improvements, particularly improvements in the area where pricing is being implemented, have all generated support for value pricing proposals. Proposals to return some portion of toll revenues in the form of reductions in local taxes or automobile fees has shown some support, but offering people rebates in the form of in-kind transit passes may not be successful in generating support (Harrington 1997).

One value pricing proposal that has a built-in rebate is called FAIR lanes. It involves separating congested freeway lanes, using plastic pylons and striping, into two sections: Fast lanes and Regular lanes. The Fast lanes would be electronically tolled, with tolls set to ensure free-flow traffic. Users of the un-tolled Regular lanes would still face congestion, but would be eligible to receive “credits” if their vehicles had electronic toll tags. The credits would be a form of compensation for giving up the right to use the lanes that were converted to Fast lanes. The credits could be used as toll payments on days when the traveler chooses to use the FAST lanes, or as payment for transit services, which would be subsidized using revenues from the FAST lanes. While this kind of proposal has received positive comment in workshop settings (ENO Transportation Foundation, 2002), it has yet to be tested in practice or in large-scale opinion polls.

Alternative policies being compared to value pricing

Public opinion about value pricing can also be influenced by the way value pricing is presented or what alternative policy it is being compared to it. When value pricing is presented solely as a way to pay for road improvements, many people feel the gas tax is a better mechanism.

- In the 1996 REACH Task Force survey cited by Higgins, “fees on roads” were considered a “fair” way to fund air quality and transportation programs by 58% of those polled, compared to 45% who favored sales taxes, but 66% who supported the gas tax as the “fairest” mechanism.

- In Portland, Oregon, Higgins found similar results, with 29% of respondents favoring flat tolls as a way to raise revenue for road improvements, and 53% favoring the gasoline tax.

Although people tend to favor the gasoline tax as a revenue mechanism, some have pointed out certain limitations of the gas tax, such as entrance of a number of alternative fuel vehicles into the fleet (assuming alternative fuels continue to receive favorable highway tax treatment). In Minnesota, focus group participants recognized that there was a need for enhanced transportation funding, but felt that the gasoline tax was the appropriate response.

Perceptions of the equity or “fairness” of value pricing

Views on equity also greatly influence public opinion on the acceptability of value pricing. When people feel that value pricing favors “the rich” over the less well off, or if they view value pricing as charging people for something they have already paid for, they tend to reject the policy on equity grounds. Of course, perceptions of equity are closely associated with the factors already discussed, since they may depend on the severity of the peak-period congestion problem faced, the type of value pricing being considered, the policies or programs that would be included in a value pricing package, and the alternative policies being compared to value pricing.

- As noted above, in the 1996 SCAG poll reviewed by Higgins, a majority of respondents (58%) viewed fees on roads as “a fair way to fund air quality and transportation programs.”
- In the 2002 San Diego survey, focus group participants expressed concern about the fairness of tolls for low-income people, but when dedication of toll revenues to the support of bus rapid transit was introduced, 85 percent of each focus group viewed the Managed Lanes proposal as “fair.”
- Participants in Portland’s outreach program expressed concerns about the effect of value pricing on low-income drivers and those with little travel choice. They were not receptive to proposed solutions such as rebates to low-income people.
- In the SR91 study, approval of the express lanes concept by survey respondents was generally not related to the income of the respondent.
- The study of pricing on the Tappan Zee Bridge did not find significant differences in attitudes about congestion pricing among different demographic groups.
- In the California state study, focus group participants expressed the opinion that value pricing was unfair because higher income people have more flexibility in their schedules than do the less affluent who would be forced to accept “far inferior” travel options.

Experience has shown that the claims that only high-income people will make use of the value priced facility are not being borne out in actual practice. Initial reactions to the SR91 Express Lanes project in California were that only the rich would be able to afford to pay for the right to use express lanes, hence the term “Lexus Lanes.” Yet, several years of operation have shown that all income groups are using the express lanes, with only a slight skewing of the distribution of users toward the higher income group. Frequency of use of the Express Lanes is more correlated with income, although 25 percent of those users included in the lowest income grouping identified in the SR91 study reported that they were “frequent users” of the Express Lanes. The San Diego experience is also bringing into question the view that HOT lanes are only for higher

income people, with majority support for the existing express lanes project and for extension of the lanes shown across all income groups.

Another view of equity in the world of highway finance is the user fee concept. There is fairly wide acceptance of the principle that highway users should pay for the costs they occasion by their use of the highway. In general, the motor fuel taxes are used as a proxy for extent of use, and various special charges for heavy vehicles are used to charge for weight-related costs. Since the traditional user fees are charges based on average costs, they do not properly account for the extra costs imposed by traffic congestion. Yet, congestion costs are also “costs occasioned,” costs imposed by travelers each time they enter a congested traffic stream. In many ways, travelers during congested periods are getting a “free ride” despite the many valid complaints about the difficulties of traveling under congested conditions. The free ride results from two conditions. First, capacity is built in response to the demands of the peak-period user, even though the costs of providing that capacity are shared by all users, including those who do not travel during congested periods or on congested routes. Second, as was noted above, users of congested routes are not charged for the costs of delay they impose on others. Development of a system of user charges that shifts a greater share of highway costs to peak-period users can therefore be viewed as an improvement in equity for all highway users.

Public Involvement is an Essential Part of Project Development

Public support is essential to the successful implementation of any public policy, but is particularly important for a policy that represents a departure from past practice, such as value pricing. To ensure that a value pricing project has every chance of being successfully implemented, project advocates need to pay close attention to public opinion. Past surveys of opinion provide insights into the key factors that influence public opinion and the concerns that need to be responded to. They can also help shape opinion surveys to be undertaken in support of project development. If initial survey work has already been done, there is perhaps enough information already available about public attitudes toward tolling or value pricing in the abstract. What needs to be done next is to provide a context for people to begin “working through” the problem of dealing with traffic congestion. This is perhaps most productively done in small-group settings, such as focus groups. People need to be given full information about the proposed value pricing project and its goals, and need to be given an opportunity to see the trade-offs involved with alternative solutions. They need to be involved in project development, providing project planners with continuing advice and feedback on project options. If value pricing is to be implemented, it has to be seen as the logical solution arrived at through public participation, not something that has been developed in isolation by “experts.” Just as new products are introduced with marketing campaigns, new public policies need to be “marketed” to the public. Focus group discussions and other methods of surveying public opinion can provide essential insights that can help shape value pricing project development.

Appendix A: Higgins, T. J. (1997). *Congestion pricing : the public polling perspective*
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Public Opinion Polls on Congestion Pricing

Poll	Date	Result
San Diego Association of Governments: peak-period commuters on I-15 residing in zip code areas near the corridor. ¹	1996	<ul style="list-style-type: none"> • 62% will consider "signing up" for HOV buy-in. • 72% say solos "should be allowed" to use HOV lanes for a fee. • Support unrelated to age, sex, income or occupation. • 70% willing to pay \$20/month; 52%, \$30; 37%, \$40 for unlimited use of lane. • 80% favor using revenues for "better transit service."
Southern California Association of Governments: five-county representative sample of residents. ²	1996 (August/September)	<ul style="list-style-type: none"> • 37% favor 5 to 10 cents/mile on freeways with revenues to general transportation purposes. • Most common reason for opposition: "just another tax" (26%). • Support directly related to belief about effectiveness in speeding traffic; unrelated to income. • 48% support with 50% rebate in form of reduced taxes; 36% support with coupons for transit or vehicle repair. • 46% support for pricing only on existing leftmost freeway lanes; 55% support on new "fast lane."
Southern California Association of Governments: five-county representative sample of residents. ³	1996 (January)	<ul style="list-style-type: none"> • "Fees on roads" perceived as "fair way to fund air quality and transportation programs" by 58%, more fair than sales taxes (45%) but behind gas taxes (66%). • 40% say congestion fee is good or excellent way of reducing congestion. • 62% support SR-91 HOV buy-in. • 70% more likely to support fees of any kind for transportation/air if offset by tax cuts.

Portland General Electric: statewide survey representative sample of residents. ⁴	1996	<ul style="list-style-type: none"> • Congestion pricing for "holding down traffic" supported by 23% statewide (27% maximum support by area). • Flat tolls for improving roads supported by 29%; gas tax for same purpose favored by 53%.
San Francisco Bay Area Council: five-county representative sample of residents. ⁵	1995	<ul style="list-style-type: none"> • 27% favor \$3 tolls on bay bridges to raise money for transportation. • 38% prefer peak pricing on Bay area highways using nonstop pay technology. • 40% favor \$3 peak pricing of solo drivers on bay bridges. • 59% support \$3 toll on Oakland-SF Bay Bridge, carpools go free, revenue to public transit across bay.
Sacramento Area Council of Governments: four-county representative sample of registered voters. ⁶	1995	<ul style="list-style-type: none"> • 24% support congestion fee as a way to pay for "transportation system improvements." • 37% support paying tolls to use "new highway facilities." • 50% support a gas tax option to pay for "transportation improvements."
Minnesota Department of Transportation: peak-hour travelers to major centers in Twin Cities metro area via traffic intercept. ⁷	1995	<ul style="list-style-type: none"> • 26% favor peak/off-peak pricing on all freeways, up to 49% if coupled with removal of ramp meters. • 33% favor tolls on new lanes or roads compared to 47% for existing facilities. • Top-three uses of revenue are: maintain toll road (56%) or all roads (54%); public transit for corridor (50%) or area (53%); reduced property tax (52%). • Only 29% favor low-income tax credits. • Acceptability unrelated to income, except <\$20,000/year more supportive (82%).
London Metropolitan Transport Research Unit: London and national surveys of residents or drivers. ⁸	1989 1990 1991 1994	<ul style="list-style-type: none"> • From 4% (national drivers) to 34% (London residents) favor "charges to city centers." • Increase from 34% to 55% (London residents) in support with carpool exemptions; increase from 43% to 62% (London residents) with revenue to public transit.

Metropolitan Transportation Commission: five-county representative sample of residents. ⁹	1994	<ul style="list-style-type: none"> • 54% support Bay Bridge peak-period pricing; support varies by price level (from 61% at \$2 to 11% at \$5). • Opponents and undecided more likely to support with transit improvements (45%), increase carpool assistance (39%), decrease in nonpeak tolls (35%), discounts for low-income drivers (31%). • 54% say pricing is unfair to occupations requiring day use of vehicles; 46% say unfair to low-income people; 41% unfair to those on fixed work schedules.
Institute of Transportation Studies, University of California, Davis: Los Angeles, San Diego, San Francisco Bay Area, residents near HOV lanes (not representative of jurisdictions). ¹⁰	1993	<ul style="list-style-type: none"> • Congestion pricing ranked third behind gas tax and converting a freeway lane to a HOV lane as means for improving air quality and traffic.
Southern California Association of Governments: five- county representative sample of residents. ¹¹	1990	<ul style="list-style-type: none"> • 28% agree (strong or somewhat) to "rush-hour charges" to encourage alternative mode use; 51% strongly disagree.
Hawaii DOT representative sample of Oahu residents. ¹²	1983	<ul style="list-style-type: none"> • 39% favor most frequent road users paying more. • 15% favor study of congestion pricing.

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